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An Examination of Spikes in Online Extremist Activity

Robinson Strawn Schwenke
Undergraduate Honors Thesis
Sanford Institute of Public Policy
Duke University, Class of 2014
Durham, North Carolina

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Abstract:

Current literature has extensively noted the sizeable Islamic Extremist online media campaign, but has not studied the relationship of this online world with the violent extremist activities of the actual world, and more importantly, what real world events contribute to activity on these forums. Thus, this thesis examines the relationship between the offline and online world by examining whether these forums are incited by successful terrorist actions whether offensive US actions, measured by drone strikes, contribute to forum activity. Using a regression analysis, this thesis tests for correlation between spikes in post counts from 27 Islamic extremist forums and drone strike occurrences and spikes in global Islamic extremist-caused casualties measured in the Global Terrorism Database. Following the regression, I present three case studies of specific spikes, which examine the drone strikes, terrorist attacks, and forum content during the spike. I find that there is significant correlation between spikes in terrorist-caused casualties and forum posts, but that there is no significant relationship between drone strikes and spikes in forum posts.

I would like to thank my friends and family who supported me through this process. I would also like to thank Professor Kelley, who helped guide me to a workable topic and refocused me when I began to drift away. Finally, I would like to thank Professor Timothy Nichols, whose insights into each topic I pursued and support as I pursued those many topics were invaluable. Without these individuals, I would not have been able to successfully perform the research contained herein.

I. Introduction

On May 2nd, 2011 US Navy SEALs launched an operation into Pakistan that resulted in the killing of Osama bin Laden. As millions of Americans celebrated his demise by going onto the streets, activity on online extremist forums around the world spiked; 8 days after his death, activity on the Al-Boraj forum, one of the largest Islamic extremist forums, had surged from just over 100 posts to over 2,700 posts per day. This is not an isolated event; activity on these extremist forums has surged for a wide array of world events, such as the Marriot Hotel Bombing in Islamabad, the Pakistani government's admission of consent to US drone strikes, foreign intervention in the Libyan Revolution, and many other world events.

The forums have become an increasingly important venue for extremist interactions, not only with each other but with the rest of the world as well. Just as Twitter or Facebook may experience surges of activity in response to certain issues, so do these extremist forums. This presents researchers with a very interesting opportunity to examine what type of events incite the users of these forums, which may provide a portal into what incites the broader Islamic extremist community. We know that these forums serve an important role in the terrorist media campaign, but what we don't know is whether there is a clear relationship between the offline world and online world, and most importantly, to what extent it catalyzes individuals involved online to actively play a role in these forums. Thus this research seeks to answer the specific question or whether spikes in activity on this forum are associated with spikes in terror-caused casualties, or whether spikes in forum activity are associated with drone strike occurrences. By assessing whether

offensive US actions defined by drone strikes or whether successful terrorist attacks contribute to spikes in activity on these forums, researchers can make deductions as to what role the forums play in the extremist media campaign and their radicalization efforts. This research used both quantitative and qualitative analysis of the number and content of posts on these forums. To determine whether drone strikes or spikes in terrorist activity are correlated with spikes in activity on Islamic extremist forums, a regression analysis was used. Following that, the most prominent surges in the forums were identified, and the content of the forums was explored to provide a more clear association between surges in terrorist-caused casualties and activity on these forums.

By answering these two questions, this thesis seeks to determine what the role of these forums is in the broader Islamic extremists' media campaign. Do they serve as places for terrorists to criticize the actions of government in an effort to radicalize individuals through personal or political grievances, or do they serve as digital venues for terrorist groups to proclaim their successes in order to form a more cohesive group ideology. Or perhaps, do they serve no role at all and are largely insulated from events in the real world? The importance of fighting terrorism coupled with terrorists' impressive and dangerous use of the Internet makes any insights this research can provide into understanding not only the role, but also the importance of these online forums, essential to the counterterrorism field. If it is determined that certain events are correlated with increases of activity on extremist forums, then the US may want to adjust its media campaign in order to emphasize certain actions and downplay those that are causing spikes of activity on

these forums. Understanding whether terrorist attacks or drone strikes encourage these Islamic extremists to post could help policymakers understand what actions will likely incite the Islamic extremists in both the offline and online world.

II. Theoretical Framework

In the 1970s, the US Department of Defense's Defense Advanced Projects Research Agency (DARPA) was tasked with the creation of a decentralized communications network, which was intended to reduce its vulnerability to nuclear attacks (McDonald, 2010). Since then, this military project has evolved into what is now the World Wide Web or Internet and encompasses many aspects of our daily lives. Recent developments especially have made the Internet into an active environment; users now upload and download content continuously around the world. It has become embedded into almost every facet of our lives, and almost all people and groups have utilized it. Terrorist groups are no exception; they have established sites and forums dedicated to spreading their violent ideology into the homes and Internet cafes of supporters and foes alike.

Although terrorism has become an incredibly common term since the tragic events of 9/11, a formal definition is nonetheless helpful for this study. Because one of this study's main data sources is the Global Terrorism Database, we will use the definition provided in its associated codebook: "the threatened or actual use of illegal force and violence by a non-state actor to attain a political, economic, religious, or social goal through fear, coercion, or intimidation" (p. 6).

The Internet has become one of the key battleground in the war on terror, however, it is not a matter of cyber attacks and hacking, but rather a matter of

propaganda, news, swaying opinions, and recruitment (Kohlmann 2006). Major terrorist leaders including Bin Laden, al-Zarqawi and others have acknowledged the importance of the Internet, especially the online forums, in the fight for hearts and minds of their support base. The US has not followed suit. Although the United States has an online presence, it is “a mediascape in which the United States rapidly lost the moral-emotional advantage of September 12, 2001” (Dartnell 2006) (p. 103). As Brachman states, although some of the more sensational aspects of Islamic extremist Internet activity such as cyber-attacks garner more attention both from the media and from policymakers, it is the more mundane aspects like the forums that are more meaningful (Brachman 2006). Even under mounting pressure of international governments, “the tolerant, virtual environment of the Internet offers them a semblance of unity and purpose” (Sageman 2008). Although individuals may first pursue an extremist ideology due to a personal or political grievance, the forums provide the necessary online community to catalyze group radicalization of a large number of people. The prior research has firmly established the forums are critical in the media campaign, however, what this research seeks to answer is whether they do that through the advancement of their own successes or through the criticism of US actions against them and the Muslim population.

Extremists' Activity on the Internet

Extremists' presence on the Internet has expanded exponentially over the past decade. According to the Department of Homeland Security, there were 12 terrorist websites in 1998; as of April 2013, there were over 7,000 (Today 2013).

There are an astounding amount of sites connected to, though not directly affiliated with al Qaeda or its affiliates, with over 5,600 websites as of January 2008, although tracking these sites is very difficult, as they often appear and disappear or change Uniform Resource Locators (URLs) (Rogan 2006, Denning 2009).

These sites include material published by official terrorist groups, ideology published by terrorist supporters, fatwas by various terrorist leaders, training material published by unaffiliated 'trainers,' chat rooms, and many other types of media and content. Some groups do produce official sites such as the Palestinian Islamic Jihad and Hamas, who even operates a YouTube-like service called Aqsatube, most do not and thus rely on the forums included in this study and other unofficial websites to spread their ideology and message (Reid, Qin et al. 2005) (Bendle 2008). However, many groups, including Al Qaeda and its affiliates, do operate media wings, which produce the material that is later distributed on these sites.

Terrorist media production centers, such as the As-Sahab Foundation for Islamic Media Production, serve as outlets of recruitment propaganda, jihadi news, and other ideological indoctrination. They foster awareness about their cause through a continuous stream of emails, propaganda videos, and pictures (Brachman 2006). These videos are then often posted in both multiple languages, including English, and also in multiple formats such as Windows Media, MPEG4, flash, and even a format for mobile devices (Denning 2009). The material published by these distribution centers is almost immediately mirrored on literally thousands of sites

and forums across the web (Lieberman 2008). This allows terrorist groups perform a type of “virtual command and control:” although they cannot control the actions of their supporters, these groups are able to tightly control the news that is specifically associated with that group (Reid and Chen 2007) (p. 5). By exercising this command and control, terrorist groups are able control the news that is published about the global jihad, however, the current work has not addressed whether the terrorist media campaign seeks to highlight their own successes, or whether the campaign seeks to highlight the actions of the US against terrorists and the Muslim world, and this is the gap that this research seeks to fill.

Individual Pathways of Radicalization

One of the most prominent and important theories of terrorist radicalization is that of the pathways and pyramid model, promulgated by McCauley and Moskalenko (McCauley and Moskalenko 2008). This model argues that the actual terrorists form the peak of a pyramid; with the base of this pyramid representing all those who sympathize with the goals the terrorists claim to fight for. McCauley and Moskalenko then go on to identify the 12 “pathways” which they believe can lead this base to violent political activity, which include individual, group, and mass reasons (McCauley and Moskalenko 2008). Among these 12 pathways, there are a few which are of note in this research: individual radicalization through a personal grievance, individual radicalization through a political grievance, individual radicalization through the ‘slippery slope’ and group radicalization in like-minded groups, which is discussed later (McCauley and Moskalenko 2008).

Individual radicalizations by personal grievance or by political victimization are very similar, and both are oft-cited reasons for what causes an individual to take the first steps towards terrorism (McCauley and Moskalenko 2008). In the case of Islamic terrorism, drone strikes may play an important role in both; according to Peter Bergen, although the strikes have killed many terrorists, including 33 leaders, “violence in Pakistan has gone up dramatically since the [drone] program began, from only 150 terrorist incidents in 2004 to a peak of 1,916 in 2009” (Bergen and Tiedemann 2011). As McCauley and Moskalenko note, drone strikes do not have to directly affect an individual: it can often be a perceived victimization of a social or ethnic group that causes an individual to turn to political violence (McCauley and Moskalenko 2008). This grievance, the drone strikes, could in turn lead to a subsequent individual radicalization through the slippery slope, which could materialize itself on these forums through a user first signing up, then reading, then beginning to post, and then attempting to contact a terrorist group in order to join (Weimann 2006). Thus drone strikes may be an important political or in some cases, personal, grievance that is contributing to increased activity on these forums. The forums may also serve as a social “blob” as Sageman describes, which then follow the pathways of group radicalization (Sageman 2009).

Group Radicalization Through the Forums

As stated previously, one of McCauley and Moskalenko’s 12 pathways is group radicalization in like-minded groups, of which the forums are a prime example. Users on a forum are “brought together to discuss issues of risk taking or

political opinion” and in those discussions, “show consistently two kinds of change: increased agreement about the opinion at issue, and a shift in the average opinion of group members” (McCauley and Moskalenko 2008) (p. 422). By exercising a virtual command and control of information, extremists can generate increased agreement about an issue and further radicalization. According to a Senate Case Study regarding Online Islamic Radicalization, al-Qaeda releases its messages through vetted online forums (Staff 2012). Put quite simply, these forums and sites have privatized the flow of information for a large group of people by allowing terrorists groups to control their own news, highlighting their successes and downplaying their failures (Dartnell 2006). To Dartnell, this takes the form of web activism, which “as a practice seeks to shape perceptions by using technology to place ideas, values, and beliefs before global civil society” (Dartnell 2006) (p. 8). As the traditional media often reports from a very different perspective, such as that of the United States, than that of Islamic extremists, they seek to advance their agendas in cyberspace, much of which cannot be done in public.

The chat rooms and forums in particular, have become virtual spaces for the bonding of individuals with common beliefs and ideologies, especially deviant individuals such as Islamic extremists, who cannot talk about their beliefs in public (El-Nawawy and Khamis 2009). This characteristic makes these extremist forums important to terrorist groups or those who support them, not only as a means of getting their message out from the perspective that they desire, but also as a means of create a “global community of like minds and spirits;” even when marginalized in the offline world, member of the groups are able to be “alone together” online (El-

Nawawy and Khamis 2009) (p. 56). According to a Department of Homeland Security briefing on Internet Radicalization, the “Internet can de-marginalize identities by allowing deviant individuals to find like-minded communities” and has enabled individuals “with common beliefs to find one another and reinforce behaviors that may be considered unacceptable by broader society” (Kevin Strom 2010) (p. 16). Al Qaeda and other terrorist groups have “much wider ambitions than just setting off explosives” (Weimann 2006) (p. 66). Rather, they are trying to mobilize the entire Muslim world against the west, and the Internet is their method of doing so (Weimann 2006). Thus, the Internet allows Islamic extremists to create what they would call a virtual *umma*, or community, twisting Islamic teachings to create an even stronger sense of an *umma*. On these forums, anyone can issue “nonvalidated fatwa” and give “nonauthenticated religious advice” to more people than ever before, which has clear implications for recruitment and support as *fatwas* and ideology can be twisted to the needs of terrorist groups (El-Nawawy and Khamis 2009) (p. 74). What makes this twisting of religion even more powerful is increasing amount of individuals are turning to online religion due to the “transitional societies” in which many of these people live (El Nawawy and Khamis 2009) (p. 74).

And to an extent, that strategy is working; there is no shortage of individuals who are willing to help influence public opinion on the forums. According to one American who was radicalized online, “‘Terrorist content self-generated by individuals throughout the world will almost certainly play an increasing role in sustaining violent Islamist extremism’” (Staff 2012). And there are least 5,000

individuals similar to him: the largest radical forum, with over a million messages, has *at least* 5000 active users (Kevin Strom 2010). According to Thomas, these forums allow “terrorists to amplify the consequences of their activates with follow-on messages and threats directly to the population at large” (Thomas 2003). Thus, although there are a few “young people turning to violence, they are part of a larger network of young people who share the same ideas,” which Sageman would call a social “blob” (Sageman 2009). To McCauley and Moskalenko, these supportive individuals form the base of the radicalization pyramid: those who sympathize the goals that the terrorists claim to be fighting for (Sageman 2008).

Marc Sageman presents a theory in which he argues that social “blobs” are one of the key building blocks for a shift from violent extremist to extremist violence. These “blobs” already have a “counter-culture” view, and joining an extremist “blob” is a low-risk activity, because its activities are still legal. However, as described above, group radicalization can turn this blob to violence. When this blob makes the turn to extremist violence, there are three categories of affiliations that emerge: the active core, the members, and the periphery members (Sageman 2009). The active core is comprised of those members who are the drivers of plots, while the members are very willing to carry out such atrocities but lack the ability or desire to drive the plot. The final group, the periphery members, are rarely involved directly in the plot, but are nonetheless facilitators who may provide members with accommodations or provide material support to the plot (Sageman 2009). However, the extent to which this online “blob” relates to the offline “blob” is not readily understood, and in order to use this research to help understand a

broader perspective of the attitudes of Islamic extremists, a discussion of that relationship is necessary.

Relationships between Offline and Online Behavior

Although we understand that extremist sties, chat rooms, and forums are integral in terrorist communication, “what is less known is the extent to which any of these types of Web sites serve as gateways or catalysts into more active participation of a particular deviant impulse or tendency” (Kevin Strom 2010) (p. 36). The Internet has proven vital to other social movements, from elections to fringe movements, as it allows like-minded people to better locate and converse with each other, which has decreased “the distance between talk and organized action” (Kevin Strom 2010) (p. 42). This is no different for terrorist groups, as the “widespread of network of Web sites is used to feed directions and information from those at the top of al Qaeda to supporters and sympathizers around the world” (Weimann 2006) (p. 65).

El Nawawy thus asserts that the online community is an extension of the offline community as the values and meaning of such a virtual community are directly derived from its associated offline community. The Internet allows more ideologues, whether trained scholars or simply radical forum contributors, to reach a larger audience (El-Nawawy and Khamis 2009). And the constant exposure to the radical viewpoints present on these forums “accelerates and intensifies the transgression, reshaping, and transformation of the boundaries of identity and politics...” (Dartnell 2006) (p. 103). Thus we cannot assume that the offline and

online communities are separate; the online community cannot survive without the offline and is “affected by the prevalent culture of the offline community” (El-Nawawy and Khamis 2009) (p. 60).

The research has thus established that terrorist groups and their supporters have clearly utilized the Internet to support their broader media strategy, however, the specific ways in which they do that are not readily understood. The types of material on these sites have not been as often researched, and there has been even less done on the relationships these forums have to the real world. Thus this research seeks to determine what it is that incites activity on these forums; is it the personal and political grievances of drone strikes, which catalyze activity, or is it the successes of the terrorists which contribute to group radicalization?

III. Data

To analyze the relationships between spikes in online extremist activity and spikes in terrorist caused casualties, as well as drone strikes, four sources of data were required. These three sources were the Dark Web Forum Portal (DWFP), the Global Terrorism Database (GTD), the Washington Post’s *Tracking America’s Drone War* and the LexisNexis Academic service. The range of all material and analysis was begin at the inception of the earliest forum contained in the DWFP, namely October 7, 2001, and ended when the GTD ended its collection, which was Dec. 31, 2011.

Extremist online activity was analyzed through the “Dark Web Forum Portal,” which has been collecting threads and posts 27 specific terrorist forums in English, Russian, German, and Arabic since 2003. This service, run by the University

of Arizona's Artificial Intelligence Lab, uses advanced web crawling to collect posts and threads from these forums, and currently logs over 13,000,000 messages, to include multimedia such as videos (Chen, 2012). All types of activity on these forums were analyzed. When necessary, translations of forum posts were done through Google Translate. The DWFP provides safe, searchable access to these forums, including the dead ones, which alleviates any security concerns. The 29 forums contained on this database are listed below. It is important to note that not all of these forums are exclusively extremist, and may cover topics other than extremist ideology. Additionally, many of the participants on some forums are moderate. However, they have all been used by terrorists to spread ideology, and thus are included (Chen 2012).

Al-Boraq - <http://www.alboraq.info/>
 Al Firdaws Forum - Forum Dead
 Alokab - <http://www.alokab.com/forums/index.php>
 Alsayra - <http://www.alsayra.com/vb/>
 At-tahadi - <http://www.atahadi.com/vb/>
 Montada - <http://www.montada.com/>
 Shumukh al-Islam Network – Forum Dead
 Al-Fallujah Islamic Forums – Forum Dead
 Midad al-Suyuf (Almedad) – Forum Dead
 Al-Qimmah Islamic Network - <http://www.alqimmah.net/>
 Ansar AlJihad Network (AsAnsar) - <http://www.as-ansar.com/vb/>
 Hanein Net - <http://www.hanein.info/vb/main.php>
 Al-Mujahidin Electronic Network – Forum Dead
 Ana al-Muslim - <http://www.muslm.net/vb/>

Ansar Al Jihad Network - <http://www.ansar1.info/>
 Hawaa World - <http://forum.hawaaworld.com/index.php>
 Hadramont - <http://www.hdrmut.net/vb/>
 Gawaher - <http://www.gawaher.com/>
 Islamic Awakening - <http://forums.islamicawakening.com/>
 Islamic Network - <http://talk.islamicnetwork.com/>
 Islamic Web Community - <http://www.myiwc.com/forums/index.php>
 Turn to Islam - <http://turntoislam.com/community/>
 Ummah - <http://www.ummah.com/forum/>
 Al Minha DJ - <http://forum-alminhadj.com/>
 Al-Mourabitoune – Forum Dead
 Ansar Al-Dschihad Netzwerk – Forum Dead
 KavkazChat - <http://www.kavkazchat.com/>

Violent terrorist activity was measured using the total casualties on a given day, as recorded by the GTD. This variable was chosen because more lethal terrorist events are likely to cause more activity on the forums. Because the GTD collects

information on terrorist events around the world, and Islamic extremist terrorist does not make up all terrorist attacks, the author therefore limited the data to only include Islamic terrorist events. Unfortunately there is no single variable that accomplishes this, so it was done manually by removing non-Islamic groups, such as those that contained references to socialism, Marxism, Maoism, anarchism, proletarian, fascism, or other non-Islamic ideologies, and when it was unclear, the group was researched to determine its ideology. When no groups were available, regions that lack substantial Islamic extremist activity, such as South America, were removed. To track drone strike activity, I will use the Washington Post's *Tracking America's Drone War* (Post 2013). To determine specifics about drone strikes and world events during the surges, I used LexisNexis Academic's "BBC Monitoring International Reports" to identify relevant news stories in the day prior to a spike in activity to attempt to identify confounding variables for each case study.

IV. Data Analysis

This research used a combination of quantitative and qualitative methods to compare activity spikes on extremist forums to spikes in global terrorist attacks and drone strikes. The quantitative method compared the spikes of activity present on extremist forums to spikes of terrorist violent activity, measured through the GTD. The second stage was then examined forum content to more positively identify the main driver of the surge in forum activity.

The first stage of this thesis quantitatively compared the activity trends present on the extremist forums to violent Islamic extremist activity around the

world as well as US drone strikes. This was done through the creation of a regression, which simply tested for correlation between spikes in terrorist-caused casualties, and spikes in activity on the 27 forums listed above. To do this, spikes were defined as any value, which exceeded one moving standard deviation above the moving mean of Forum Posts and terrorist-caused casualties. A spike was chosen because it removes the very strong trends that are associated with the data. For instance, as the US got more involved in Iraq, the number of terrorist attacks increased. Similarly, as the Internet became more prevalent and accessible, the number of posts increased. Thus spikes provide a better look at specific terrorist attacks or drone strikes which could contribute to activity on these forums. Spikes were coded as simply a “1” or “0.” Following that, drone strike occurrences were added to the dataset, with a “1” representing a day on which at least one drone strike occurred and a “0” representing a day on which no publicly recorded strikes occurred. The model used to determine whether there was a relationship between spikes in activity and spikes in kills was:

$$\text{Spike in Posts} = \text{Spike in Casualties} + \text{Year} + \text{Drone Strike Occurrence} + \text{Categorical Variable Representing the Different Forums}$$

These variables, along with a dummy variable to represent year and a categorical variable representing the various forums, were regressed with a spike in forum activity as the dependent variable and a spike in terrorist-caused casualties, drone strike occurrences, year, and the forum factor variable being independent variables. Models were also created to test for up to three days of lag for a spike of casualties to affect a spike in forum activity, and also to test if spikes in forum activity

preceded spikes in terrorist-inflicted casualties. The level of statistical significance was set at 5%.

However, in order to ascertain a clearer understanding of the relationship between spikes in terrorist activity, measured in terrorist-caused casualties, and spikes on these forums, I delved into the content of the forums during the largest spikes in activity. In order to do this, I first had to select the spikes that were the largest and most common across the forums. This was done by increasing the definition criteria of a spike in forum activity from one standard deviation above the moving mean to two standard deviations above the moving mean. This dramatically limited the total number of spikes, allowing for an easier identification of the most important and most common. The spikes that were then selected were not a single day, but rather a time period in which the most forums spikes within 2 days of one other. These spikes persisted until there were no more forum spikes within 2 days. For clarity, these prolonged spikes are hereafter referred to as surges. Following the identification of surges, the content of the forums was browsed by looking at every fifth page of results on the Dark Web Forum Portal. However, it was not done so randomly, as performing a random query would require downloading all posts within a time period, of which there were often tens of thousands.

This methodology has certain limitations. The first is that on these forums, there is believed to be a large presence of researchers, government officials, and other persons who are simply there to attempt to study the reactions of those on the forums and thus may try to incite the genuine users of the forums (Kevin Strom 2010). Additionally, due to the way in which data is collected in the Dark Web

Forum Portal (Web crawling), there are certain periods of time about which there is very or no little data. Because this research looked at just spikes in online activity, my analysis was limited to only major surges in forum activity and major terrorist attacks, which may cause the analysis to miss some nuance associated with the forum. Similarly, because only occurrences of drone strikes were included, the effects of multiple drone strikes on the same day could be missed. The final limitation is more theoretical; although the literature has established that there is some relationship between the offline community and online community, and have even established that there is a connection between what they are talking about and events in the real world, it is very difficult to make causal relationship between what happens online in the forums and offline in the actual world.

V. Results

Fig. 1

	Data Range	Total	Average	Spikes
Attacks	10/07/01 to 12/31/11	63380	16.956	643
Drone Strikes	11/03/02 to 12/22/11	230	N/A	N/A
Ansar al-Dschihad Netzwerk	2/27/09 to 1/19/10	1768	12.321	46
Al Minhadj	6/1/08 to 12/31/11	8907	16.298	175
Islamic Web Community	10/7/01 to 2/19/10	24226	17.642	462
Atahadi	4/14/08 to 1/20/10	5484	24.105	80
Al Qimmah	11/23/07 to 12/31/11	33613	53.652	209
Al Mourabitoune	5/5/02 to 3/27/09	72140	60.724	382
Almedad	3/18/06 to 9/17/10	40248	70.118	186
Islamic Network	6/9/2004 to 12/31/11	91874	85.424	358
Al Firdaws	1/2/05 to 12/6/07	39715	117.153	117
Alokab	4/8/05 to 12/31/11	143347	118.469	359
Islamic Awakening	4/28/04 to 12/31/11	177378	139.448	411
Ansar 1	12/8/08 to 12/31/11	29492	152.021	57

AsAnsar	11/07/08 to 12/31/11	22050	219.403	24
Gawaher	10/24/04 to 12/31/11	364495	278.240	398
Al Boraj	1/8/2006 to 12/31/11	297633	327.970	278
Turn to Islam	6/2/06 to 12/31/11	333443	340.248	309
Al Mujahideen	11/09/07 to 11/10/10	165510	388.521	124
Kavkaz Chat	3/21/03 to 12/31/11	678980	441.183	483
Shumukh al-Islam	3/21/07 to 2/12/10	299956	700.014	136
Al-Sayra	10/7/01 to 12/31/11	1335129	778.259	476
Ummah	10/7/01 to 12/31/11	1456861	819.382	524
Montada	10/7/01 to 12/31/11	1672182	914.352	485
Hadramout	10/7/01 to 12/31/11	1888870	1014.703	561
Al Fallujah	9/19/06 to 1/20/10	564159	1146.665	137
Hanein	11/27/06 to 12/31/11	990234	1391.755	213
Ana al-Muslim	1/1/06 to 12/31/11	2002603	1846.568	236
Hawaa World	10/7/01 to 12/31/11	2969433	1699.732	521

Part I: Regression Analysis of Spikes in Posts and Spikes in Terrorist-Inflicted Casualties

There is a significant relationship between spikes in terrorist casualties and spikes in online extremist activity with no lag period, and there is no significant relationship between drone strikes and online extremist activity. The model shows that that the only meaningful significant variable describing the occurrence of a spike in posts was a spike in casualties on the same day. The *Year* variable was included to account for yearly trends in terrorist activity, which may have had an impact on spikes in posts. The *as.factor(Forum)* variables represent a relationship each of the forums has with spikes, with a significant p-value simply meaning that spikes are more likely to occur on those forums. The full results of the test are below

Figure 2.

Coefficients:				
	Estimate	Std. Error	z value	Pr(> z)
(Intercept)	-1.754	11.19	-0.157	0.87542
base\$Spike_k	0.112	0.03163	3.54	0.0004

base\$Dronestrike	-0.06525	0.04832	-1.35	0.17692
base\$Year	-0.00007152	0.005578	-0.013	0.98977
as.factor(base\$Forum)2	0.113	0.06797	1.662	0.09648
as.factor(base\$Forum)3	0.1487	0.06689	2.222	0.02625
as.factor(base\$Forum)4	0.124	0.06794	1.825	0.06798
as.factor(base\$Forum)5	0.04152	0.06933	0.599	0.5493
as.factor(base\$Forum)6	0.1594	0.07039	2.265	0.02352
as.factor(base\$Forum)7	0.1808	0.06956	2.599	0.00934
as.factor(base\$Forum)8	0.1604	0.07353	2.182	0.02915
as.factor(base\$Forum)9	0.1718	0.07277	2.361	0.01821
as.factor(base\$Forum)10	0.1966	0.07428	2.647	0.00813
as.factor(base\$Forum)11	0.1825	0.07548	2.417	0.01563
as.factor(base\$Forum)12	0.1303	0.07566	1.723	0.08498
as.factor(base\$Forum)13	-0.2241	0.0851	-2.634	0.00845
as.factor(base\$Forum)14	0.1218	0.08196	1.486	0.13737
as.factor(base\$Forum)15	0.1721	0.07964	2.161	0.03072
as.factor(base\$Forum)16	0.02362	0.08931	0.264	0.79144
as.factor(base\$Forum)17	0.1133	0.0935	1.212	0.22548
as.factor(base\$Forum)18	0.1505	0.09095	1.655	0.09795
as.factor(base\$Forum)19	-0.01768	0.1041	-0.17	0.86515
as.factor(base\$Forum)20	0.08523	0.0968	0.88	0.37864
as.factor(base\$Forum)21	-0.1905	0.2224	-0.857	0.3917
as.factor(base\$Forum)22	-0.01376	0.1087	-0.127	0.89925
as.factor(base\$Forum)23	0.08459	0.1517	0.557	0.57719
as.factor(base\$Forum)24	0.1459	0.1054	1.384	0.16631
as.factor(base\$Forum)25	0.1507	0.1313	1.148	0.25112
as.factor(base\$Forum)26	0.02578	0.1108	0.233	0.81603
as.factor(base\$Forum)27	0.08548	0.1671	0.512	0.60897

As one can see, a spike in terrorist-caused casualties had an extremely low p-value, with the other significant variables being a variety of *as.factor(base\$Forum)* variables which represent the Hadramout, the Islamic Web Community, Kavkazchat, Gawaher, Islamic Awakening, Al Mourabitoune, Islamic Network, Ana al-Muslim Forum, and Turn to Islam forums. However, these significant results simply mean that these forums have more spikes than those that were not significant. None of the models that included a lag time were found to be significant for any variable. Thus it

appears that those who use these forums are able to access them quickly and report on and discuss a terrorist act the same day as it occurred.

Part II: Case Studies of Specific Surges in Activity

a. August 6-10, 2009

Figure 3.

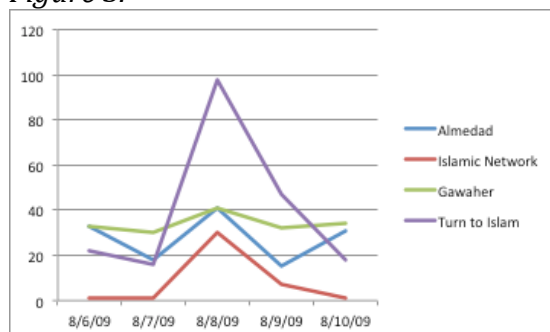
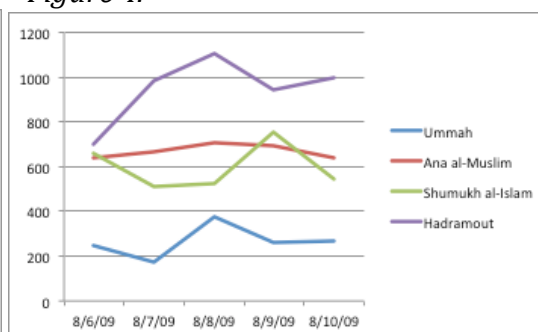


Figure 4.



During this surge, there are a few noteworthy events. Three days prior to the beginning of this surge, there had been a drone in South Waziristan that killed two, including Baitullah Mehsud, the leader of the Pakistani Taliban (BBC, 2009). At the time however, it was not clear whether Mehsud had been killed in the attack and there was a variety of speculation in the region as to whether he had actually been killed. The Pakistani government opened a probe into the matter (Service 2006). The Pakistani Taliban did not officially acknowledge his death until August 25, 2009 (BBC, 2009), but did acknowledge that there was a strike, and claimed it had killed children (BBC, 2009). Given this individual's prominence, his death is likely to have caused a lot of activity on the extremist forums. Beyond drone strikes, there was a suicide attack on a Shia Mosque in Shirakhan, Iraq that killed 40 on the afternoon of August 7 as well as a major attack on a Pakistani tribal leader, Ajmal Khan, which

killed him and an additional 16 on August 9. A few examples of commentary are below.

- User 'صكر Iraq' posted about a gunman killing 6 government policemen as well as a bomb which targeted a police patrol in Baghdad
- User 'Islamic Army Reporter' of Al Boraq forum posted a video of a American Hummer being attacked on August 8, 2009
- User 'the minister Abdullah' posted an extensive report of military activities performed by the Islamic Emirate of Afghanistan
- User 'the minister Abdullah' also reported that the Taliban have killed five Italian soldiers in Afghanistan
- User 'Kandahar Fallujah' of Ana al-Muslim forum posted a thread called "Sheikh Al-Ali Hamid laments Mujahidin Baituillah Mehsud
- Multiple threads were created regarding the Sunni-Shia split, some of which had over 50 replies in which Sunnis, specifically Salafists call out Shias calling them "polytheists" and "dogs"

This surge was the only one of the three in which the death of a terrorist leader was specifically acknowledged, although given the importance of Baitulluah Mehsud, this is likely an outlier given the results of the regression of the remaining two case studies. However, it is still notable that a large amount of the chatter seemed to be about successful terrorist attacks.

b. January 1-10, 2010

Figure 5.

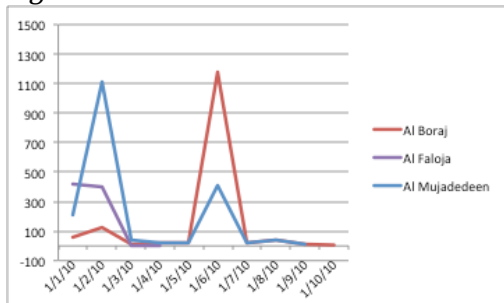
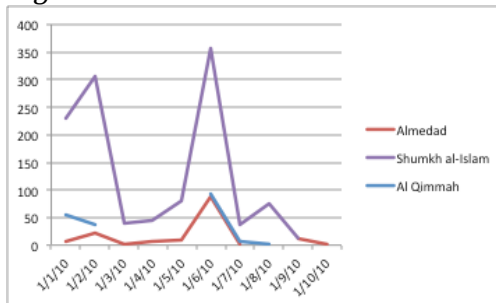


Figure 6.



In time period in which surges were most present across the most forums, there is both a highly successful terrorist attack, and a series of American drone strikes. The two largest surges of this time period occurred on January 2 and 6, 2010. On Dec 30, 2009, a double agent of both Al Qaeda and the Pakistani Taliban detonated his vest, killing 10 CIA personnel and contractors, in one of the most lethal attacks on the CIA in its history (Finn 2010). Perhaps in retaliation, in the 10 days following there were a total of seven drone strikes on targets in Pakistan. These strikes occurred on Dec. 31, 2009 and Jan. 1, 3, 6, 8, and 9, 2010 in North Waziristan, Pakistan. Although most of the drone targets targeted low-level militants, on Jan. 9, a drone strike is alleged to have killed Jamal Saeed Abdul Rahim, who was wanted for his role in the 1986 Pan-Am 73 hijacking. As there was both a successful terrorist attack and a series of drone strikes, it is difficult to say which was more important in causing the surges (Post 2013).

However, in going through many of the forums during the days of the surge, there was no comment on the drone strikes, but the name and story of the doctor who successfully attacked the CIA appear quite frequently. Comments relating to other terrorist attacks are also very common. What is odd about this example is that

the surge in posts appears to be attributed to terrorist activities, but unlike the regression implied, there is a significant delay in this report. However, this specific attack is somewhat usual because it attacked the CIA, and most news stories did not appear until January 5th or 6th of 2010, which may explain the delay. A few examples of forum commentary are below:

- User of the Ana al-Muslim Forum ‘Nasir al-Din al-Tamini’ praised doctor Balawi, calling him a “brave martyr and a gallant doctor”
- User of al Mujahedeen Forum ‘Mujahedeen Notebook’ reported that terrorists had destroyed two Canadian military vehicles on January 5, 2010:
- One thread containing a report of Dr. Balawi’s story had over 70 replies.
- User of Shamukh al-Islam ‘Girl Islam’ posted, “Jordanian Doctor Slapped CIA”
- User of Al Mujahedeen Electronic Network ‘Notebook Jihad’ released an Al Qaeda General Command Statement praising Dr. Balawi for penetrating the American defenses, which received over 20 responses.
- User of Al Fallujah Forum ‘Zaid Goodness’ wrote a personal opinion supporting the actions of Dr. Balawi, which received nine responses.
- When one thread on the Ansar1 Forum posted Dr. Balawi’s martyrdom video, it received over 30 replies.

Thus for this surge in activity, it appears that even in the presence of multiple drone strikes, it was still the successful attack that was discussed in the forums.

c. February 15-22, 2010

Figure 7.

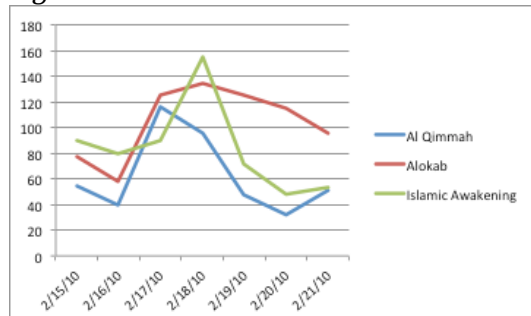
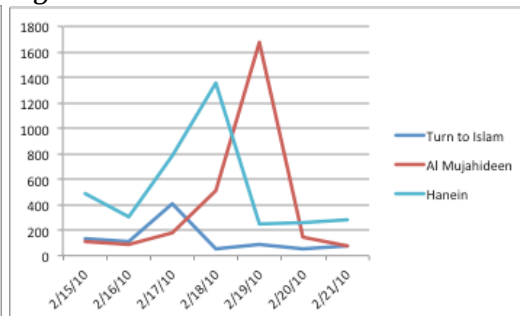


Figure 8.



Much like the last identified surge, this cause of this surge is similarly hard to identify as there are 48 separate terrorist incidents during this time period, killing a total of 101 people, but there is also one drone strike immediately before on February 15 and two drone strikes during the surge, on February 17 and 18, 2010. All three drone strikes occurred in North Waziristan. The drone strike on Feb. 15 struck a car, killing four militants, including the leader of the East Turkestan Islamic Party. The drone strike on Feb. 17 struck a militant compound, killing three militants and wounding three more (Mujtaba 2010). The Feb. 18 drone strike targeted a car killing four militants, including Mohammad Haqqani, whose brother, Sirajuddin Haqqani, became leader of the Haqqani Network after the father of the two brothers become ill (Shah 2010).

However, when going through the Forums, it is clear that it is reports and discussion of terrorist activity that is contributing to the surge in activity during this period. These discussions generally seem to be started by someone who serves as a “reporter,” but is most likely an agent of a terrorist group, such as Al Qaeda and its affiliates like the Islamic State of Iraq. The top posters during this surge are “قاتل” (Jew Killer), “المجاهدين مفكرة” (Mujahideen Notebook), “لمراسل” (Reporter),

“الاحبة نلقى غدا” (Tomorrow we meet our lovers), and finally “الجاهدين شبكة مراسل” (Mujahedeen Network Reporter). These four users accounted for over 22% of all threads during this time period. As one can see, the names of these users clearly indicate their intent, and the threads and messages during this time portray a similar intent and purpose.

- User of Ana al-Muslim Forum ‘I am a loving Muslim’ reported on a terrorist attack in Mosul, which killed 23 on February 18, 2010
- User of Al Mujahedeen Forum ‘Mujahedeen Network Reporter’ posted an extensive summary of terrorist actions carried out by the Islamic State of Iraq, which received five replies thanking the Mujahedeen.
- User of Al Mujahedeen Forum ‘Mujahedeen Notebook’ reported on a “number of attacks on the occupiers in the state of Ghanzi – 18/2/2010” conducted by the Islamic Emirate of Afghanistan, more commonly known as the Taliban
- User of Hanein Forum ‘Reporter’ posted about an attack on a hummer of the “puppet government” in Mosul
- User of Al Mujahedeen Forum ‘Mujahedeen Notebook’ reported on an attack by the Taliban in the Nad Ali District on February 18, 2010

- User al Mujahedeen Forum 'Mujahedeen Notebook' posted a video of an attack on an American vehicle on February 19, 2010
- User of al Mujahedeen Forum 'Tomorrow we meet our lovers' posted a report about terrorist activities which killed or wounded 12 Russia soldiers in the Caucasus

As can be seen by the posts above, on these days, reports of terrorist attacks and the ensuing commentary seems to be the main driver of the surges because these four users are posting multiple threads about terrorist activity, to which other users are responding with support.

VI. Discussion

The results of the regression demonstrate that these forums to serve not as a venue for terrorist groups and their supporters to decry the actions of the US government, but rather as a venue for terrorist groups to proclaim their successful attacks. The anecdotal evidence discovered in the case studies supports this, although it may be that in the presence of the death of a major leader, like Baitullah Mehsud, that American actions are inciting some activity on the forums. However, judging from the other case studies as well as the regression results, this event is an outlier and in most cases, the users of these forums are simply celebrating terrorists' successes rather than their defeats. Thus the users on these forums are 'rooting for the home team' as they only seem to celebrate the victories of their

'team' and in most cases, ignore the actions of the 'away team,' especially when those actions can be seen as tactical defeats for the terrorists.

Given the single-minded opinions and stories on the forums, it seems that they are controlled in an effort to promulgate a single, unified message. Although examples of deleted post could not be found, it is clear that the forums have moderators. For instance, the Al Boraj Forum lists its moderators, some of whom are : العراق آساد (Recession Iraq), إعلامی (Iraqi media), التمكنين جند (Soldiers of empowerment), and عمر 2000 (Omar 2000) (2013). The Ansar1 forum does not seem to list moderators, but does note in a carefully worded statement that, "Threads published in 'Ansar Al Mujahideen Forums' do not necessarily reflect the vision of the network because the threads are not subject to censorship before publication" (Network 2013). Many other forums are moderated, such as my Islamic Web Community, which explicitly notes that "Forums are fully-moderated, and each Forum has one or two moderator" and later states that "any posts which go against the teachings of Sunni thought will be removed from the discussion board" (Community 2013). Thus although the effects of these moderators is hard to measure, their presence says something nonetheless.

Perhaps a product of this moderation, there was no conversation or threads about attacks on Muslims in the sample viewed in this research. Even in the presence of a very large attack on an exclusively Muslim population, there was not a single mention of a specific attack on Muslims, although during the August 7-9, 2010 surge, there was a thread calling the Shia sect of Islam "polytheist dogs." However, there were still no mentions of the specific attack on the Shia Mosque that had

occurred. Thus, although arguments relating to the Sunni-Shia split are present, arguments surrounding sensitive issue of killing Muslims are not, and thus the lack of posts regarding that issue may have be an intentional choice by the moderators of the forums.

Similarly, another trend, which was not expected on the forum, was the presence of users who seem to serve as “reporters” for various terrorist organizations, whose posts seem to drive activity and frame issues on these forums. For instance, in every case study looked at, users such as ‘Notebook Jihad,’ ‘Islamic Army Reporter,’ or ‘Mujahedeen Network Reporter’ contributed to these surges by starting multiple threads reporting on the activities of terrorist groups. Although these users do not seem to be to sole cause of these surges, they are contributing to the activity by framing issues and starting the threads on which the other users posts.

Given these finds, these forums seem to be designed to promote what McCauley would call “group radicalization through in like-minded groups” as opposed to “individual radicalization through personal victimization or political grievance.” Instead of highlighting the grievances against them, the forums present certain views, all of which are in agreement, in order to influence the average group member to become more and more extreme (McCauley and Moskalenko 2008). That may explain the lack of stories regarding the killing of Muslims or any viewpoints decrying the actions of terrorists. Although the exact reasons that the grievance of drone strikes is ignored on these forums is not clear, it may be because they are seen as a tactical defeat for terrorists, and may scare off potential recruits. Thus it

appears these terrorist organizations believe that presenting a message in support of the terrorist groups as opposed to one criticizing US actions is more effective at further radicalization the users of the forums. To Sageman, these users are the periphery members, who have already been drawn to this ideology due to some perceived individual or group grievance, but who are not currently ready to move from the low-risk association with the “blob” to a high-risk association with a specific terrorist group or act. The support of the many individuals on these forums who praise the violent actions taken by certain individual or group could easily encourage other members of the forum to take similar actions, in order to receive that similar support.

VII. Conclusion

As the United States and its allies continue to pressure and attack terrorist groups in the countries in which they reside, these groups will continue to seek innovative methods to continue to gain supporters. These forums may be one of those methods. Using a regression analysis, I tested for correlation between occurrences of drone strikes spikes in terrorist activity, and activity on Islamic extremist forums. The results of this regression suggested that terrorist activity was a significant factor in contributing to activity on these Islamic extremist forums, while drone strike occurrences were found to not be significant. Using specific case studies of selected spikes in forum activity, the content of these forums was examined, and from the anecdotal evidence gained, it appears that it is indeed terrorist activity being discussed on these forums, with the death of a terrorist

leader only being acknowledged in the case of a leader as important as Baitullah Mehsud. Therefore, the forums seem to serve as a venue on which terrorists proclaim their own success, and seem to ignore the majority of the 265 drone strikes that occurred during the range of the data, focusing rather on creating a message, which is supportive of terrorist activity that is designed to sway the opinions of the group to become more extreme.

This finding is key in understanding the nuances of the “war of ideas” which currently wages between terrorist groups and their supporters and the US and its allies. By understanding that terrorist forums focus on promoting group radicalization by fostering a support network rather than fostering a hate network, it allows US policymakers and counterterrorism officials to better craft their own countering messages on these forums. Because the forums are public, counterterrorism officials can easily access them and begin posting messages to threads to disrupt the single-mindedness, which is currently allowing the group radicalization process to continue uninterrupted. Although these posts may be removed, it will take time, and these dissenting messages will still influence those who see them. To promote a dissenting message, counterterrorism officials must begin to point out the aspects of the war on terror which are currently ignored on the forums: the toll of the drone strikes, failed terrorist attacks, and the many Muslims deaths resulting from terrorist activity. By commenting on these issues, counterterrorism officials may be able to chip away at the group mindset currently on the forums, and persuade some individuals that the support for violent extremist activities is not strong as the forums currently portray.

Although this thesis presents one of the few examples of a quantitative analysis of terrorist activity online and terrorist activity offline, there is still much to be done. First, a more sophisticated regression, which could include a variety of other variables, such as military actions taken besides drone strikes, as well as the release of important terrorist messages, may be useful in more firmly establishing a relationship. A different quantitative method may also be useful, such as time series analysis through Granger causality or cross correlation. Similarly, a content analysis of all posts during surges may be useful to establish more than anecdotal evidence that it is the terrorist attacks driving the surges. Although the analyses included in this research provide a first look into these forums, more work should be done to more firmly establish the relationship identified and described herein.

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